



SEQUENCE LISTING

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NOV 12 2003

TECH CENTER 1600/2900

<110> SHAO, Wei et al.

<120> ISOLATED HUMAN TRANSPORTER PROTEINS,
NUCLEIC ACID MOLECULES ENCODING HUMAN TRANSPORTER PROTEINS,
AND USES THEREOF

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<212> DNA

<213> Homo sapiens

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Leu	Met	Ile	Lys	Thr	Ile	Thr	Leu	Val	Leu	Ala	Val	Ala	Ser	Gly	Leu	210	215	220
Ser	Leu	Gly	Lys	Glu	Gly	Pro	Leu	Val	His	Val	Ala	Cys	Cys	Cys	Gly	225	230	235
Asn	Ile	Phe	Ser	Tyr	Leu	Phe	Pro	Lys	Tyr	Ser	Thr	Asn	Glu	Ala	Lys	245	250	255
Lys	Arg	Glu	Val	Leu	Ser	Ala	Ala	Ser	Ala	Ala	Gly	Val	Ser	Val	Ala	260	265	270
Phe	Gly	Ala	Pro	Ile	Gly	Gly	Val	Leu	Phe	Ser	Leu	Glu	Glu	Val	Ser	275	280	285
Tyr	Tyr	Phe	Pro	Leu	Lys	Thr	Leu	Trp	Arg	Ser	Phe	Phe	Ala	Ala	Leu	290	295	300
Val	Ala	Ala	Phe	Val	Leu	Arg	Ser	Ile	Asn	Pro	Phe	Gly	Asn	Ser	Arg	305	310	315
Leu	Val	Leu	Phe	Tyr	Val	Glu	Tyr	His	Thr	Pro	Trp	Tyr	Leu	Phe	Glu	325	330	335
Leu	Phe	Pro	Phe	Ile	Leu	Leu	Gly	Val	Phe	Gly	Gly	Leu	Trp	Gly	Ala	340	345	350
Phe	Phe	Ile	Arg	Ala	Asn	Ile	Ala	Trp	Cys	Arg	Arg	Arg	Lys	Ser	Thr	355	360	365
Lys	Phe	Gly	Lys	Tyr	Pro	Val	Leu	Glu	Val	Ile	Ile	Val	Ala	Ala	Ile	370	375	380
Thr	Ala	Val	Ile	Ala	Phe	Pro	Asn	Pro	Tyr	Thr	Arg	Leu	Asn	Thr	Ser	385	390	395
Glu	Leu	Ile	Lys	Glu	Leu	Phe	Thr	Asp	Cys	Gly	Pro	Leu	Glu	Ser	Ser	405	410	415
Ser	Leu	Cys	Asp	Tyr	Arg	Asn	Asp	Met	Asn	Ala	Ser	Lys	Ile	Val	Asp	420	425	430
Asp	Ile	Pro	Asp	Arg	Pro	Ala	Gly	Ile	Gly	Val	Tyr	Ser	Ala	Ile	Trp	435	440	445
Gln	Leu	Cys	Leu	Ala	Leu	Ile	Phe	Lys	Ile	Ile	Met	Thr	Val	Phe	Thr	450	455	460
Phe	Gly	Ile	Lys	Val	Pro	Ser	Gly	Leu	Phe	Ile	Pro	Ser	Met	Ala	Ile	465	470	475
Gly	Ala	Ile	Ala	Gly	Arg	Ile	Val	Gly	Ile	Ala	Val	Glu	Gln	Leu	Ala	485	490	495
Tyr	Tyr	His	His	Asp	Trp	Phe	Ile	Phe	Lys	Glu	Trp	Cys	Glu	Val	Gly	500	505	510
Ala	Asp	Cys	Ile	Thr	Pro	Gly	Leu	Tyr	Ala	Met	Val	Gly	Ala	Ala	Ala	515	520	525
Cys	Leu	Gly	Gly	Val	Thr	Arg	Met	Thr	Val	Ser	Leu	Val	Val	Ile	Val	530	535	540
Phe	Glu	Leu	Thr	Gly	Gly	Leu	Glu	Tyr	Ile	Val	Pro	Leu	Met	Ala	Ala	545	550	555
Val	Met	Thr	Ser	Lys	Trp	Val	Gly	Asp	Ala	Phe	Gly	Arg	Glu	Gly	Ile	565	570	575
Tyr	Glu	Ala	His	Ile	Arg	Leu	Asn	Gly	Tyr	Pro	Phe	Leu	Asp	Ala	Lys	580	585	590
Glu	Glu	Phe	Glu	Phe	Thr	His	Thr	Thr	Leu	Ala	Ala	Asp	Val	Met	Arg	595	600	605
Pro	Arg	Arg	Asn	Asp	Pro	Pro	Leu	Ala	Val	Leu	Thr	Gln	Asp	Asn	Met			

610		615		620
Thr Val Asp Asp Ile Glu	Asn Met Ile Asn Glu	Thr Ser Tyr Asn Gly		
625	630	635		640
Phe Pro Val Ile Met Ser	Lys Glu Ser Gln Arg	Leu Val Gly Phe Ala		
	645	650		655
Leu Arg Arg Asp Leu Thr	Ile Ala Ile Glu Ser	Ala Arg Lys Lys Gln		
	660	665		670
Glu Gly Ile Val Gly Ser	Ser Arg Val Cys Phe	Ala Gln His Thr Pro		
	675	680		685
Ser Leu Pro Ala Glu Ser	Pro Arg Pro Leu Lys	Leu Arg Ser Ile Leu		
	690	695		700
Asp Met Ser Pro Phe Thr	Val Thr Asp His Thr	Pro Met Glu Ile Val		
705	710	715		720
Val Asp Ile Phe Arg Lys	Leu Gly Leu Arg Gln	Cys Leu Val Thr His		
	725	730		735
Asn Gly Arg Leu Leu Gly	Ile Ile Thr Lys Lys	Asp Ile Leu Arg His		
	740	745		750
Met Ala Gln Thr Ala Asn	Gln Asp Pro Ala Ser	Ile Met Phe Asn		
	755	760		765

<210> 6
 <211> 60
 <212> PRT
 <213> *Xenopus laevis*

<400> 6
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Asn Ile Pro Leu Arg Asp Leu His Lys Arg Gly Thr His Tyr Thr Val
20 25 30
Thr Asn Gly Gly Ala Ile Asn Ser Thr Thr His Leu Leu Asp Leu Leu
35 40 45
Asp Glu Pro Ile Pro Gly Val Gly Thr Tyr Asp Asp
50 55 60

<210> 7
 <211> 4
 <212> PRT
 <213> *Homo sapiens*

<400> 7
Asn Glu Thr Thr
1

<210> 8
 <211> 4
 <212> PRT
 <213> *Homo sapiens*

<400> 8
Asn Thr Ser Glu
1

<210> 9
<211> 4
<212> PRT
<213> Homo sapiens

<400> 9
Asn Ala Ser Lys
1

<210> 10
<211> 4
<212> PRT
<213> Homo sapiens

<400> 10
Asn Met Thr Val
1

<210> 11
<211> 4
<212> PRT
<213> Homo sapiens

<400> 11
Asn Glu Thr Ser
1

<210> 12
<211> 4
<212> PRT
<213> Homo sapiens

<400> 12
Lys Lys Glu Ser
1

<210> 13
<211> 4
<212> PRT
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<400> 13
Arg Arg Lys Ser
1

<210> 14
<211> 4
<212> PRT
<213> Homo sapiens

<400> 14
Arg Lys Ser Thr

1

<210> 15
<211> 4
<212> PRT
<213> Homo sapiens

<400> 15
Ser Ala Trp Glu
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<210> 16
<211> 4
<212> PRT
<213> Homo sapiens

<400> 16
Ser Leu Tyr Asp
1

<210> 17
<211> 4
<212> PRT
<213> Homo sapiens

<400> 17
Thr Thr Phe Glu
1

<210> 18
<211> 4
<212> PRT
<213> Homo sapiens

<400> 18
Thr Phe Glu Glu
1

<210> 19
<211> 4
<212> PRT
<213> Homo sapiens

<400> 19
Thr Trp Ala Glu
1

<210> 20
<211> 4
<212> PRT
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<400> 20
Ser Thr Asn Glu
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<210> 21
<211> 4
<212> PRT
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<400> 21
Ser Leu Glu Glu
1

<210> 22
<211> 4
<212> PRT
<213> Homo sapiens

<400> 22
Ser Leu Cys Asp
1

<210> 23
<211> 4
<212> PRT
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<400> 23
Thr Val Asp Asp
1

<210> 24
<211> 4
<212> PRT
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<400> 24
Ser Ile Leu Asp
1

<210> 25
<211> 4
<212> PRT
<213> Homo sapiens

<400> 25
Thr Val Thr Asp
1

<210> 26

<211> 4
<212> PRT
<213> Homo sapiens

<400> 26
Thr Pro Met Glu
1

<210> 27
<211> 4
<212> PRT
<213> Homo sapiens

<400> 27
Thr Lys Lys Asp
1

<210> 28
<211> 6
<212> PRT
<213> Homo sapiens

<400> 28
Gly Leu Ala Ser Gly Ala
1 5

<210> 29
<211> 6
<212> PRT
<213> Homo sapiens

<400> 29
Gly Ala Leu Ala Gly Leu
1 5

<210> 30
<211> 6
<212> PRT
<213> Homo sapiens

<400> 30
Gly Ile Cys Leu Ser Ala
1 5

<210> 31
<211> 6
<212> PRT
<213> Homo sapiens

<400> 31
Gly Ser Asn Glu Thr Thr
1 5

<210> 32
<211> 6
<212> PRT
<213> Homo sapiens

<400> 32
Gly Leu Ser Leu Gly Lys
1 5

<210> 33
<211> 6
<212> PRT
<213> Homo sapiens

<400> 33
Gly Asn Ile Phe Ser Tyr
1 5

<210> 34
<211> 6
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<213> Homo sapiens

<400> 34
Gly Val Ser Val Ala Phe
1 5

<210> 35
<211> 6
<212> PRT
<213> Homo sapiens

<400> 35
Gly Ala Pro Ile Gly Gly
1 5

<210> 36
<211> 6
<212> PRT
<213> Homo sapiens

<400> 36
Gly Val Leu Phe Ser Leu
1 5

<210> 37
<211> 6
<212> PRT
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<400> 37
Gly Val Phe Gly Gly Leu
1 5

<210> 38
<211> 6
<212> PRT
<213> Homo sapiens

<400> 38
Gly Gly Leu Trp Gly Ala
1 5

<210> 39
<211> 6
<212> PRT
<213> Homo sapiens

<400> 39
Gly Leu Trp Gly Ala Phe
1 5

<210> 40
<211> 6
<212> PRT
<213> Homo sapiens

<400> 40
Gly Val Tyr Ser Ala Ile
1 5

<210> 41
<211> 6
<212> PRT
<213> Homo sapiens

<400> 41
Gly Ala Ile Ala Gly Arg
1 5

<210> 42
<211> 6
<212> PRT
<213> Homo sapiens

<400> 42
Gly Ala Ala Ala Cys Leu
1 5

<210> 43
<211> 6

<212> PRT
<213> Homo sapiens

<400> 43
Gly Ile Tyr Glu Ala His
1 5

<210> 44
<211> 6
<212> PRT
<213> Homo sapiens

<400> 44
Gly Ile Val Gly Ser Ser
1 5

<210> 45
<211> 6
<212> PRT
<213> Homo sapiens

<400> 45
Gly Leu Arg Gln Cys Leu
1 5

<210> 46
<211> 601
<212> DNA
<213> Homo sapiens

<400> 46
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ttgaactctg atcttcaata agcattgtgc ggtttttgtt tttgttttta atgacagttt 120
taaacaagaa agttgcttta tttctgaact tcataaaaat ttctattaaa gagacaattt 180
ctgaatttta taacaatttc tagaacagtt gagtacctca ctttgagaca cttttttgct 240
aaaagttaaa aacacaaaac ctttatgaga taaaatagga agctagtaga gataggaaag 300
ycctctgctt agtaaaccctc ttttttgctg agtttagaca catacaatag taaagttact 360
tagtacgttg atagttttct ttctcctcaa aagctacaat gtcttactag ctagtccctt 420
caagaaagga aacaagaagc cgctggagga gattggtgag tgggataaaa cactattcaa 480
ctcttcagtt attcggtttt taaatcctca atgaaaggct gctgtattat agagtatttt 540
ttttttattt ttaatagact tagaaccaag tttcttgaga aacctttggc atattgtagt 600
t 601

<210> 47
<211> 601
<212> DNA
<213> Homo sapiens

<400> 47
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aaagttaaaa acacaaaacc cttatgagat aaaataggaa gctagtagag ataggaaagt 120
cctctgctta gtaaaccctc tttttgctga gtttagacac atacaatagt aaagttactt 180
agtacgttga tagttttctt tctcctcaa agctacaatg tcttactagc tagttccttc 240
aagaaaggaa acaagaagcc gctggaggag attggtgagt gggataaaac actattcaac 300

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ycttcagtta ttcgggtttt aaatcctcaa tgaaaggctg ctgtattata gagtattttt 360
tttttatttt taatagactt agaaccaagt ttcttgagaa acctttggca tattgtagtt 420
tttttatggc tatgactcac atgacattac tgtataaaac tagtacattc tctcgtaaaa 480
ccacacaaac ttactagagt gctgctctca tttttctaca ttagaaatga aaaagggcat 540
tgtctgcatt caaaatttcc tttttacatc tctgtattac tttttccctt ttatatattat 600
c 601

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<210> 48
 <211> 526
 <212> DNA
 <213> Homo sapiens

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<400> 48
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tttggctcat actttaatca tgaggctaaa ctgcttctct ctacacgtat cttcatagta 120
acttggtgtt taagtctggt agaagcataa gaagtttaaa cacagacaga atcctgtgga 180
agttagtaaa tttctagtga acgatagaaa tgatagaaat ctcttcttcc cccaaagtcc 240
caagaacaga ttagtctgct tttgacaagt gttatcaaag tagactgttc tcacatacac 300
rggggactca atagggcatt cctggtggat ataataaaat gagtaaattgc gataacagga 360
ggaaatgcct agtgtgttgc tcttgatta gttttgatac aacaaaggca gctttgttgt 420
gagtcagtag agagggtagt gtagaaagg ggaagttgga agagtggcag atcctagagg 480
actaatgatg ggcttaaacc acaaaaagtg tcgctttgcc attgaa 526

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<210> 49
 <211> 601
 <212> DNA
 <213> Homo sapiens

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<400> 49
ataaaatgag taaatgcat aacaggagga aatgcctagt gtgttgcctt tggattagtt 60
ttgatacaac aaaggcagct ttgttgtgag tcagtagaga gggtagtgta gaaagggtga 120
agttggaaga gtggcagatc ctagaggact aatgatgggc ttaaaccaca aaaagtgtcg 180
ctttgccatt gaaataaaaag tttggggtct ttttttttca attttctccc tgaaattatt 240
tcttgacatt cattagctca gcagtgtatc taaataaagc ttttttgggt ttctattata 300
rtagagggtt gttccttttt cttccctttg aaaagtatca ttttttgcac attatttgaa 360
aatccagggt ttatatgata ttcttattgc cagagggaca ttctgcaggc tctttgtaaa 420
atgatttttag gattcagata cttattatat ttttattggc cctaataatt tatccaacta 480
gaaaattaaa cctcttctta aaaattaatc catctaagtg tctgtaaatt aaaggaacaa 540
ctaaagattc tttatttggg gtcagaaact ccttgtttct acaacagtag tataaaacaa 600
a 601

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<210> 50
 <211> 601
 <212> DNA
 <213> Homo sapiens

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<400> 50
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atccctgttc tactacttgc tagcggtgtg accttgggcc tgtttaactc ttgacacctt 120
gttttccaaa tttataaagt ggagataata atatctgtca cattgtgttg ttgtgaggat 180
tatatgaact aatatatgta atgtcctgag aacaatgtct ggtacacatt aagttaatta 240
aaattagctg ttcttactgt tattattaga catgagctag ataacagtgg cctctacatg 300
kgaaagatta ttttaattct gatgtagttc agtttatcta ttttttttat ttttgcct 360
tttgcatgta tgtcatatct aaaaaacctg cctaactcag gatcacaaaa atttactcct 420
gtattttata atttttagctc tttagatcta ggatccattt ttagctaatt tttatatatg 480
gtgtgaggta ggggtacggg ttcattcttt tgcacgtgaa tagccagttg tcccagcatc 540
>atttattcaa aagactattc tttcctcact agaaaaata tttcttttaa gaataatgaa 600

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t

601

<210> 51
 <211> 601
 <212> DNA
 <213> Homo sapiens

<400> 51
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 agctgggact acaggtgtgc accactacac gtggctttcc tgatgaaatt tttaaataccc 120
 aaatatattga gcagaaataa tagcttgtgt ttattgtttt tctactatct gtcaagtata 180
 gtattaaatg ttttacataa tttgtctcca gtccacatac aatactctag tagaagtggg 240
 taacaaaacc aaggtactca aagaggttaa taagtaactt gcgctggatc acagaactaa 300
 ygggaggcag ggctggaatt tgactctagg tctttctgac ctcaaagtgc agtaaagtca 360
 tggaatttct ctactaggcc acctggaaga aaagtgatct tttttccagt cttttttggt 420
 actgtttttc agccaggaga tagtagagtt aggtagtaga atagtagtca ctggcatccg 480
 gtagtcagcc ctccaaaaaa gtttttgatt tttttttttt tttttgtctt aaacttggaa 540
 gctactaact ttcagggtcat actttcttat catccaagag ctgggatattt aggtagcaga 600
 a 601

<210> 52
 <211> 601
 <212> DNA
 <213> Homo sapiens

<220>
 <221> variation
 <222> (301)...(301)
 <223> T may be either present or absent

<400> 52
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 aagtgcagta aagtcattgga atttctctac taggccacct ggaagaaaag tgatcttttt 180
 tccagtcttt tttgttactg tttttcagcc aggagatagt agagttagggt agtagaatag 240
 tagtcactgg catccggtag tcagccctcc aaaaaagttt ttgatttttt tttttttttt 300
 tgtcttaaac ttggaagcta ctaactttca ggtcatactt tcttatcatc caagagctgg 360
 atatttaggt agcagaaact atggaattat cctaagtcct cttgaagctt cagctgttaa 420
 aattaattgg ttctgattaa cactgtgctc aagatttaca tttctaggag ccacagtttg 480
 attgggtctaa cttggatcta tgtgttttct ttagctgggg aggagaaggt atcttgattg 540
 ataccttcac caggactgca tgcagtgagg gacagaagtt tccttaaaat aattggggtc 600
 t 601

<210> 53
 <211> 521
 <212> DNA
 <213> Homo sapiens

<400> 53
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 ttatgttttt gttttctttc tatagcacac agtaagatgt tctgccaca ttgtgcataa 180
 tttatgggtt tattcaagga tttatgcaag tgtagctgca agaaaaaac ctagaagtga 240
 acttgctagg ttgaagagca dctgtgtatg tttaaattttg ttagctttcg ccttcccaa 300
 gggattattc catttcatac ttaaactact aattttgtga taggacttct ttctccatag 360
 ctttgctaaa ttaatgcatt cacacacttc atctttacta atctgataga gggaaatgat 420
 attgtggatt tgatttgcatt ttctttttat gtgttagctt gagcttattt tcatatttaa 480

aagccaattg tattttctttt tcttgagcta tcttttaatg t

521

<210> 54

<211> 601

<212> DNA

<213> Homo sapiens

<220>

<221> variation

<222> (301)...(301)

<223> T may be either present or absent

<400> 54

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ttaaactact aattttgtga taggacttct ttctccatag ctttgctaaa ttaatgcatt 180
cacacacttc atctttacta atctgataga gggaaatgat attgtggatt tgatttgcatt 240
ttctttttat gtgttagctt gagcttattt tcatatttaa aagccaattg tattttctttt 300
tcttgagcta tcttttaatg tccttcctga tacattttctg aagtctgtga tactcatata 360
agatatatgg tgaacatgtg tcaaagattt atttgactct aatgagggaa cccgcctgat 420
gacaaggctg attgagaaga ggatgtgtga gatgaagtgt atatcatcag tgaaagaaag 480
caaattctta cagggcaaaa acaaaaccac aactctaagg gttattgttt ctactggaca 540
gaattcattt gcattttacc agataaaaat tactattttc aatttatctt ttacaaatca 600
t 601
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<210> 55

<211> 601

<212> DNA

<213> Homo sapiens

<400> 55

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gatgtgtgag atgaagtgtg tatcatcagt gaaagaaagc aaattcttac agggcaaaaa 120
caaaaccaca actctaaggg ttattgtttc tactggacag aattcatttg cattttacca 180
gataaaaatt actattttca atttatcttt tacaatcat tttctaattt tacagagtct 240
attccctaatt cagtagtaaa tagtcttcaa aattctccgc agcgtcagggt gactattatg 300
maggctaatt gttgacactc gggcttgact ttaagagaac atgccataat cttttggcct 360
tacttccaag ttttgataaa tttttcttaa cacatttttc tctaattgca atgatttcaa 420
gtgatattat ttcttttttt taaatttttt tactatttat tgatcactct tgggtgtttc 480
tcggagaggg ggatttggca gggcataggg acaatagtgg agggaagggtc agcagataaa 540
catgtgaaca aaggtctctg gttttcctag gcagaggacc ctgcggcctt ccacagtgtt 600
t 601
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<210> 56

<211> 601

<212> DNA

<213> Homo sapiens

<400> 56

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atztatcttt tacaatcat tttctaattt tacagagtct attccctaatt cagtagtaaa 120
tagtcttcaa aattctccgc agcgtcagggt gactattatg caggctaatt gttgacactc 180
gggcttgact ttaagagaac atgccataat cttttggcct tacttccaag ttttgataaa 240
tttttcttaa cacatttttc tctaattgca atgatttcaa gtgatattat ttcttttttt 300
waaatttttt tactatttat tgatcactct tgggtgtttc tcggagaggg ggatttggca 360
gggtcatagg acaatagtgg agggaagggtc agcagataaa catgtgaaca aaggtctctg 420
gttttcctag gcagaggacc ctgcggcctt ccacagtgtt tgtgtccctg ggtacttgag 480
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```

attagggagt ggtgatgact cttaatgagc atgctgcctt caagcatctg ttttaacaaag 540
cacatcttgc accgccctta atccctttaa ccctgagttg acatagcaca tgtttcagag 600
a 601

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<210> 57
<211> 601
<212> DNA
<213> Homo sapiens

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<400> 57
tttttttttt ggaggtcggg ggactgtcgc ccattctggt gcccactg gagtgcagtg 60
gtgcaatctt ggctcactgc aacctctgcc tcccagggtc aagcgattct tgtactcagc 120
ctcctgagta gctggaatta taggtgtgtg ccacatgcc aagctaattt ttgtattttt 180
agtagagatg aagtttcgcc atgttggcga ggctagtctc agactcctgg cctcaagtga 240
ttggctgacc tcagcctccc aaagtagaaa atcttcttga aaaataaaat tccaaatctc 300
raaaggccct atataatttt ggtgttgga atttacttgt caatgaaaat gactattttac 360
acaaattata agcttccata ttaatatata tgtgtgtgaa cctgaaattc aaattttatt 420
atattgttta tgaaaggtag agcctctgag attcatcaga tgggtatttac ctttagggca 480
tatctaaaaa taaaatacag tacatgaaat ccagtgttt aatccagtga ttcttaaaact 540
ttttgctctc agatcccctt taaactctta aaagatattg aagagctcca aggaggcttt 600
g 601

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<210> 58
<211> 601
<212> DNA
<213> Homo sapiens

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<400> 58
gactctacca atgggatcgg agctctccaa acctgcatat taaaaggcct ataagttttg 60
gggggtccct ttgtccacat gattattctg taatacattg tatttatgga catggtatta 120
ttatacacag atcctgtctt ttaaagaaca ttataatcca cttactgct aggaccagag 180
aatgaccgat aattcaaacc atattgtctt acagaagaca tatataaaag atgggttatgt 240
gtaccaattg aggttcaa attgattcaat ttaaaacaat ctaggccaga ttttatatag 300
wttgtggacc ctttgcactc aaatctcaag gttcttatta aaatgcagat cttggctggg 360
cacggtggct cacacctgta atcccagcac tttgggagcc caaggcagggt agatcatttg 420
agctcagaag ttcaagacca gtctggccaa catagcgagg ccaggtctca ttgaaagaaa 480
aaaaattttt taataaaaaa taaaagcaga tcttgggtaa agacatgtag tctgggtttac 540
aggtattaac aactgtctgt aatgtagtga ttttgcctca gacttacctt ttccattatt 600
t 601

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<210> 59
<211> 601
<212> DNA
<213> Homo sapiens

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<400> 59
ttactgtgaa ggctgatttt tttttctct caccactaat ttaacacatg actaggcaaa 60
ttttcagact atttagttaa acatcaagag cctggaagaa gtatcttgtg acctaatgtt 120
ctttgacggg ttagttgtta ctttgcctgt atgacctga attttttttt tttgagactg 180
agtcttgtgc tgcgcccag actggagtgc agtggcgcaa tctcagctca ctgcaacctc 240
tgcgtcccag gctcaagcaa ttcttgtgtc tcagcctcct gaggagtgtc gattgcaggc 300
mcctgtcacc atgcctgct aatttttgca tttttttgtt tgtttttttt ttttagtaga 360
gatgggggtt caccatgttg gccaggctgg tctcaaactc ctaacctcaa gtgatcacc 420
gcctcagcct cccaaagtgc tgggattaca ggtgtgagcc accacacgtg gctatgacc 480
tgattttgat tcattcactt tttataatta ccttttgatt agataagtta attattcttg 540
aatttggcca ttttatgctt tgagaaagta gttaatcaca gtgggtcaac agtacaaact 600
t 601

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<210> 60
 <211> 393
 <212> DNA
 <213> Homo sapiens

<400> 60
 atccatcacc tcaagcattt atcccttggtg ttacaaacaa tccaattaca ctcttaatta 60
 tttttaagt tacaattaaa ttattgaata tagttcaaag acttcttcat tcatgactag 120
 cacctaggct aaaaaaattc agacacctgg gctcctggga tcaatcacgc atactgtgtc 180
 tcttggtgtc actcccrctg tctctctctc tttctctcgc ttcctttttc ctctctctct 240
 gtgggttttct aggggtgggtg cctcagggaa ttggatttct tatattatag ctcaggattc 300
 ccaagagggc tgtttttaat gtagccaaag aagtcttgca gcgtgacttg ttttattcta 360
 ttcattgagg tagtcacaga ggccccacca cat 393

<210> 61
 <211> 601
 <212> DNA
 <213> Homo sapiens

<400> 61
 tacaattaaa ttattgaata tagttcaaag acttcttcat tcatgactag cacctaggct 60
 aaaaaaattc agacacctgg gctcctggga tcaatcacgc atactgtgtc tcttggtgtc 120
 actcccgctg tctctctctc tttctctcgc ttcctttttc ctctctctct gtgggttttct 180
 aggggtgggtg cctcagggaa ttggatttct tatattatag ctcaggattc ccaagagggc 240
 tgtttttaat gtagccaaag aagtcttgca gcgtgacttg ttttattcta ttcattgagg 300
 yagtcacaga ggccccacca cattcagagg agggacatac acttgctggg acaagtgtaa 360
 gagaattcat gatcatgttt taaaaccact tttattagtt tcctattgct gctgtaataa 420
 attaccacaa cttaatggct taaaagccac acaaatttaa tatcttacag ttctgcaaat 480
 caaaagtctg aaacggatct cactgtgcta aaattaaggt gttcgtaggg cattctggag 540
 gctgtaggag agagtcttgt tttttgcctt ttctggctat taaaagctgc cagcattcct 600
 t 601

<210> 62
 <211> 601
 <212> DNA
 <213> Homo sapiens

<400> 62
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 ttaagatgaa tagcatctac catttccgctc atttgtaaat atataggagg acataatcac 120
 ataactctga agtaaaagac agtgcttaaa actgaatcag ttaagtttta tgaaaaatac 180
 ttcattattgt acttttaaaa atatataatt ttttaattca atagcttttg gggtacaagt 240
 gggttttggtt acgtggatga attctataat ggtgaagtct aagattttac tgcaactgtc 300
 rccaagtag tatatattgt atccagcata ttgtcctttt ttttttcttt tttttttttc 360
 atttcacat ggactaatga aaattttgtt agggactgac attagggcac ccttgagcta 420
 ccttgagcta aaggaaataa cccttgatgt tttttctgtt tggcctagag aatgtgggtt 480
 gttttgtaac tgaattcatg ggattgttaa ggtacaagat tttgcttttag ttttatttgt 540
 actaggattt tgctatatta atacaatgtg aaaagaatca aaagtgttag aaataaatgc 600
 a 601

<210> 63
 <211> 505
 <212> DNA
 <213> Homo sapiens

<400> 63

gaagagtaga	acatgaggct	ttatttaaaa	gattagcaga	atttaaggaa	aaggtagactt	60
tgttgaagat	tataatgtga	agacaaagga	acgaggatgg	gaataaat	tgtattcatg	120
aggctttgaa	gaaattgact	ctagagagta	tattttgggt	acttttggga	aatgaagttg	180
gattagttag	aaggaacaga	ttatgaaaag	acaagaaacc	tgattaatgt	caggatgatt	240
ttatatttga	agytgggtcag	atztatggca	gtcctggcct	tgccattttt	agtttgatga	300
ctttgagaaa	gttccttctt	gaagttttta	ttttctgtat	ataaaaagta	ataacacctg	360
gtgatctgct	aggtttgttt	tgaggattat	atgagataaa	atgcatgcaa	aactgttata	420
atagtgcctg	gtaaaataag	tgccatagtt	taaaaacaag	tctttgtaaa	ctgcttagga	480
catgcctggg	atagggtagg	tatgt				505

<210> 64

<211> 601

<212> DNA

<213> Homo sapiens

<400> 64

gactttgaga	aagttccttc	ttgaagtttt	aattttctgt	atataaaaag	taataacacc	60
tggtgatctg	ctaggtttgt	tttgaggatt	atatgagata	aaatgcatgc	aaaactgtta	120
taatagtgcc	tggtaaaata	agtgcctagt	tttaaaaaca	agtctttgta	aactgcttag	180
gacatgcctg	gtatagggta	ggtatgtaat	acatagtagg	taggatctgt	ctccttgcta	240
tttttaggta	aaaaaacaaa	aggaagagct	tcagcttaat	acagtatgaa	ctgacgagcc	300
ytggtaggtt	tttgagcaaa	agagcaacac	agtaaaaagta	gtacttagga	aagattaaca	360
agggaaacatg	gcttatacag	tggtaatggg	gcctggagtc	aaggaggtaa	gataaaatgg	420
tattataatt	aaggaatagc	caggcacgat	ggcacatgca	tgtaatgcca	gctactggag	480
aggctgaggt	gggaggatca	tgggagtcca	ggagtttgag	accagcctgg	gcaactgagt	540
gagaccccaa	atcctaaaaa	atacaaagta	aaaaaggaat	aaagtcatga	gggcttggac	600
t						601

<210> 65

<211> 601

<212> DNA

<213> Homo sapiens

<400> 65

gctttgtcac	ccaggctgga	gtgtgggtgg	atgatcatgg	ctgactgcag	ccctgacctt	60
ccgggctcaa	gtgatctttc	cacctcagcc	tcccaattac	ttgggaccac	cagcatgctt	120
ggccgatttt	tttttttttt	ttttttttgt	agaagcaagg	tttccctatg	ttgccaaggc	180
tggtcttgaa	ctttagggct	catgtgatac	tcctgcctcg	gcctcccaaa	gtgttaggat	240
tacaagcctg	agccaccatg	gccggccaaa	atattttcac	tataacaaat	atcatatctg	300
katatactca	gttttaatac	taactcaaag	tagaaacata	aagctgaatg	actattttat	360
tttcagattc	tctccattga	gtttccttct	ccgtcttggt	tgatctctga	acttttctcc	420
atctttgcc	cttcttgctc	agcatttttt	ttttatcagc	agtttcattc	agattttttt	480
tttagttctt	tcaacgggtg	agtggaagta	ggcagcagga	cagaagaact	tgaagcagag	540
cacactggag	aggagaaatt	aacaaagcct	ttatgaataa	aacaaccccc	caatatcagt	600
c						601

<210> 66

<211> 601

<212> DNA

<213> Homo sapiens

<400> 66

tggtgttatgc	cctgttaact	cttacatcat	tagtttttag	cccaaaagga	aacagcaa	60
aatgttttat	atgagccaca	ttttgcgttg	attttccttc	cactctgtaa	aattactaaa	120
gcagcactct	gactttatta	tgctcaaata	gctcttctcc	attaatgtgt	gtttctccat	180
cttttagggg	ttttacttta	taaatacaga	gattactgtg	taaaattcta	aatttgccac	240
tggttcgtta	tacatttgta	accttcctca	cagtatat	ttgtgatttg	cagagtttac	300


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yaatatagat gatactaact gaaattaatc attctgtata attggataga aaagcatgag 360
taagaattca attggtatta tatttaatta attgccaaga ttttcacatt tcctgactac 420
aacaataaaa tcaaatgaat tgatggctta aaaaaaagaa atctcaaag tttagtcaat 480
gaagaacatc tattgaatga gtgaatgttc attatatata gtgcattttc tgagcttttt 540
tggaggggga agttgctccc atgctctgag aactttttaag gatcgataca ttattttttaa 600
c 601

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<210> 67
<211> 601
<212> DNA
<213> Homo sapiens

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<400> 67
gtttatattg ccacattaat ttccattata aaaccagtaa ccatagtttt gttttaatta 60
gcaatctaatt ttttttcatt tatcctcatt atgagaattt atgtccatca ctttgcttga 120
tgtgataaca gtgacatgct aaatgagaaa caattgttat ttagaaaaaa atgcacaaag 180
tgaaagtcct tttaatccct aatcataaat acattttatt agcttacttt aagaagtggc 240
agtcacagct cctgaacatt agggagtgtt tcttttggtc agcattattt atttagtgca 300
mattgccttt aattttaatt tgaaattata gtaaaatcca cgggagtttt taagtctcct 360
cacagccttt tgctaccttt tcaccaaggt agatccagat gataactgct gtgttgtagc 420
atcatagaaa ttagaaaaat attttctctt gaggaagaaa cattgtaaat gaaactctac 480
atatcagagg tctatagcta tgtatcaata ttaagtttct tttgtacttt gctttgtagt 540
catcttcatt ccaaactttc ataattatta tttttacttt aaaaagaaaa ataaccacc 600
a 601

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<210> 68
<211> 601
<212> DNA
<213> Homo sapiens

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<400> 68
aaaaaaagga aaacattgat aagtgtccta gaaacttggg tttttttata gatttgttct 60
tggggctctg atgtttggga ttgacgttct gtgctgacca ttttatatgc attttatctt 120
aatagtatgt gctttcatga agattctgat acaagtgggc aatccttaaa ttatctttga 180
aaaattgggt aattttgggt aaaaaagga aagtggctgg gtgcagtggc tcacgcctgt 240
aatccccagc actttgggag gccgggacgg gtggatcaca aggtcaggag ttgaagccca 300
ktctggccaa catggtgaaa ccctgtctct actgaaaata attggggcat ggtggcacat 360
gcctgtaatc ccagctactt gggaagctga ggcaggagaa ttgcttgaac cggggaccca 420
ggaggcggag gttgcagtga gctgagatcg cgccactgca ctccagcctg ggctacagag 480
cgagactctg tctcaaaaaa taaataaata aataaatgaa aaagagaaaa tattgagagg 540
atttggatcat ctttttactg ctctcttcat gtgatggaaa tcaattttcc ttctcaaag 600
g 601

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<210> 69
<211> 601
<212> DNA
<213> Homo sapiens

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<400> 69
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aaccatgtag tttgtaccat cactaaatgc ttggaacagt acacatgcac cacaacaaag 120
gctcatcaaa caggtaaagt ctcgaaggaa gcgagaacga aatctctcat tgtgtgccgt 180
gtggctcaaa accgaaaaca atgaagcttg gttttaaagg ataaagtttt cttttttggt 240
ttcctctcag actttatgga taatgtgacc gggctcttatg caaattttct atttctaaaa 300
stactactat gatatacaag tgctgttgag cataattaaa taaaatgctg ctgctttgac 360
agtaaagaga aggaagtatt ctgattagct gtatctggta ttaattgcat gttaaaacac 420
tgggaattttt aaaattgaaa ttagatcagt cattcttttc ttttctcaag atatctcat 480

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gctgacactg aagaagaaat gtaattcata acttgacta aatgtatatt ttttttctta 540
 aaaatttacc attcttattt atattttttat ggattaaaaat ttataaaaata cagatcagtt 600
 a 601

<210> 70
 <211> 601
 <212> DNA
 <213> Homo sapiens

<400> 70
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 tttttgtttt cctctcagac tttatggata atgtgaccgg gtcttatgca aattttctat 120
 ttctaaaact actactatga tatacaagtg ctggtgagca taattaaata aaatgctgct 180
 gctttgacag taaagagaag gaagtattct gattagctgt atctggtatt aattgcatgt 240
 taaaacactg gaatttttaa aattgaaatt agatcagtc tttttttctt ttctcaagat 300
 rtctcatggc tgacactgaa gaagaaatgt aattcataac ttgactaaa tgtatatttt 360
 ttttcttaaa aatttaccat tcttatttat atttttatgg attaaaattt ataaaataca 420
 gatcagttaa tattgcactt aagtaatttt acctttttta tgtgattttt atagaataat 480
 tcagacttac aaatacagag atatgaacaa agtttacagt ggggaacaaag gtttaaaaaa 540
 aggttgtggt tctctctctg tgatccagtg tgcacataaa cttttctctg atctttcact 600
 g 601

<210> 71
 <211> 601
 <212> DNA
 <213> Homo sapiens

<400> 71
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 tgcattgttaa aacactggaa tttttaaaat tgaaattaga tcagtcattc ttttcttttc 120
 tcaagatatc tcatggctga cactgaagaa gaaatgtaat tcataacttg cactaaatgt 180
 atattttttt tcttaaaaaat ttaccattct tatttatatt tttatggatt aaaatttata 240
 aaatacagat cagttaatat tgcacttaag taattttacc tttttaatgt gatttttata 300
 raataattca gacttacaaa tacagagata tgaacaaagt ttacagtggg aacaaagggt 360
 taaaaaaagg ttgtggttct ctctctgtga tccagtgtgc acataaacct ttctctgata 420
 tttcactgcc atcctctgga ttatgtcttc tgacctgtcc attttgacct attactgga 480
 aagttgaaaa actacattaa ctggaaagtt gaaaaactac attacttttg agaataaaac 540
 cgaaagttcg tgtatacctt cttaaaaaaa aaatcaaacc aaaaatgtga aaacaataga 600
 a 601

<210> 72
 <211> 601
 <212> DNA
 <213> Homo sapiens

<400> 72
 aaaaaagggt gtggttctct ctctgtgate cagtgtgcac ataaaccttt ctctgatctt 60
 tcaactgccat cctctggatt atgtcttctg acctgtccat tttgacctat taactggaaa 120
 gttgaaaaac tacattaact ggaaagttga aaaactacat tactttggag aataaaaccg 180
 aaagttcgtg tataccttct taaaaaaaaa atcaaaccac aaatgtgaaa acaatagaat 240
 tgcaaagata gcagttaaaa ttttaatctg aaaataacct ttgaatctcg ggctagggtta 300
 ygtccatatt tgaagtgggc agtgatgggt tgaacatttt ttgcaggatg agttaaaatg 360
 cactggatta tatttgggat ttttgttttt ggaattgtct gttttaatca cagccttaat 420
 tcacaattgg caaaggcagt ttactcaaag gactgggcta aatattctgt aattatgcat 480
 ttttgatagg aaaatgaaat ttttgcaaac agacattttc tttttttttg gctggagtg 540
 agtggggcat ggtcttggct cactgcagcg ttgaccacct gggctcaagt gatactccc 600
 c 601